It is well known in various countries that fishes swim up to a boat on a stream if a light is displayed on board.

An interesting spectacle is produced if a candle, or better still an electric glow lamp is brought near the glass sides of an aquarium. Fishes, aquatic larvæ and mullusca swim up and seek to come as near as possible to the light.

Numbers of nocturnal insects are attracted by flame. Moths, gnats, crane-flies and many other diptera are noted for their propensity to commit suicide in our lamps and candles. Many of the smaller moths are found sitting on the glasses or the iron frame-work of street-lamps. I have known an old lady made ill with fright because a death's-head (*Acherontia atropos*) had flown against her candle and put it out.

But we must now glance at the main question, that is, the meaning of the behavior of nocturnal animals in presence of a light. The alarm of many species is not hard to understand. A bright light is a phenomenon which does not fall within the limits of their experience and seems to them, therefore something to be avoided. But to see nocturnal, abysmal or cave-dwelling species flocking to a light is perplexing.

It has been suggested that the moth thinks the flame an outlet through which it may escape. But why should it seek to escape from a condition which to it is as normal as is sunlight to the butterfly or to the bee? It has again been suggested that nocturnal insects and fishes are able to preceive the faint phosphorescent light apparently given off by many flowers, and by aquatic worms, etc. Hence the moth rushes to the lamp mistaking it for a flower. On coming nearer he is bewildered by the intensity of the light and "loses his head." This same supposition explains why mosquitoes are less attracted by a lamp than are most other insects. They are not accustomed to find their food in phosphorescent flowers, hence the lamp has to them little attraction.

True, this hypothesis fails to show why birds should dash themselves against the windows of a lighthouse. Their normal food is not phosphorescent. Nor, to our knowledge, are their eyes capable of perceiving a faint phosphorescent light.

Probably no single hypothesis will meet all the cases of the attraction of animals to light.

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The Aurora.

The contradiction in certain statements of mine with reference to the possibility of tracing the relation of the aurora to disturbances upon a particular part of the sun in certain years which Professor Ashe thinks he has detected and which he puts into italics at page 9 of *Science* for July 7 amounts to simply this: In one sentence which he quotes I am giving the reason why the relation in question comes out distinctly in years of minimum, namely, because the disturbances are well separated from each other, and, taking 1879 as an example, show by a table that this was the case in that year, in which both auroras and sunspots were so very few that the numbers to be employed were so extremely small that it might justly be doubted whether they show anything, and yet, in spite of this disadvantage, namely, the smallness of the numbers, the relation was plainly apparent. In another sentence, referring to the matter from this point of view, namely, the size of the numbers to be employed, I state that in 1880 the relation in this respect would be much more distinct, this also being a year of comparative minimum in which the disturbances were well separated from each other, so that the conclusion with reference to this year contained in the sentence which Professor Asche quotes would be fully justified, i.e., "the numbers would be larger and the relation in every way more distinct." The only reason for the publication of the table for 1879 was to show what would appear in the year in which we might suppose the relation exceptionally difficult to trace and yet in which it was distinctly apparent in spite of the smallness of the numbers. It was simply picking out the worst possible case, as we would naturally suppose, instead of the best possible case, and it is to its discussion that the sentences which Professor Ashe quotes, refer.

M. A. VEEDER.

Lyons, N. Y., July 13.